This is a Reply Comment to the 71 Comment Filings made on Docket 98-153 before Feb 3d. We have studied all of them, with an eye toward what they offer

a. In technical support, or rebuttal of the NOI proposition that advances in digital signal processing now makes it possible to change the Part 15 rules to permit ultra-wider bands of allowed frequencies.

b. In explanation of proposed new or expanded uses of the spectrum for applications in the public interest.

c. The rationale for opposition to any changes in the Part 15 Rules.

I

THE BOLDEST PROPOSAL - NO LIMITS

We find that the Boldest Proposed changes, which should be fully supported and incorporated into one or more implementing NPRM, were contained in the extended comments with supporting technical data, by Interval Research Corporation.

In particular we endorse their idea of opening up ALL frequency bands to UWB usage, on the grounds that devices manufactured without the allowed bands being chopped up will cost much less to manufacture, and therefore the products will be affordable to a much wider public, particularly consumer products. That is in the public interest.

It goes without saying that, in order for such a rule, which orders, in effect, that UWB devices can share frequencies with other devices, rules will have to be promulgated that insures that no device will interefer with existing licenced-frequencies because they operating below the background noise threshold, the final determination of this being during testing of new devices for FCC certification.

But this is precisely the revolution in frequency sharing, without interference, made possible by current, and projected future digital signal processing gain that has made more limited spread spectrum devices operate successfully in the recent past - since the 1985 rules were made. NPRM which adopt this policy for UWB spectrum use represents the true revolution now possible, for multiple uses of the spectrum which, until now has been, for technical reasons only, a scarce resource.

We urge the FCC to look hard at this Interval recommendation - which goes substantially beyond the very limited vision represented by the original NOI, which seemed to be interested only in the most specialized, limited frequencies, limited range and power devices - of value to a very restricted number and variety of public users and manufacturers.

BUT NOT BOLD ENOUGH - SHORT RANGE

The only limitation we found with the Interval recommendations, is that its proponents did not visualize the need for the higher power, longer range devices (50 miles in rural areas) that we, the NSF Wireless Field Test project strongly recommended in

our Comment Filing. We spoke to Engineers who prepared Interval's Comments to determine whether they had technical reasons for not recommending XXXXX such ranges, even though they clearly identified the Congressional legislated goals for public access to advanced telecommunications capabilitites - including 'education.' Interval simply has not analyzed the full range of needs of US public education, rural and urban, for high speed, lowest cost, long range (between physical school plants, ISP locations, apart from short range, in-building connectivity.). They noted no technical reasons why this cannot be done, as it is routinly by Defense Department agencies using bands allocated to them with far few restriction than that imposed on the Public for general civilian use.

We suggest that the US Military and contractors who have made spread spectrum radios for their uses, have already demonstrated the capability of technical manufacturing companies to make such radios. It is no accident that Clarion Corporation, which has recently released radios after developing radios for DoD, perform at 25 miles and 11Mbps, using only 1 watt of power and operating in the restrictive 2.4Ghz line-of-sight current Part 15 bands. Think bigger FCC, and you will really be serving the broadest, not the narrowest, public purposes.

III

WHAT INTERFERENCE?

The technical analyses by Interval, which also includes a validation of the main thesis of Tim Shepard's MIT thesis - demonstrates clearly that the fears of interference by UWB devices on existing services is simply overrated. Again, providing that devices and radios made under new, wider band rules, are held to a rigerous standard of the lowest practicable average XXXXXX 'emanations' over their selected bands.

The objections by the FAA, WinForum, XXXX Broadcasters, and the AARL (while yet the Digital Radio Hams - TAPR - did NOT object to changed rules) simply provided no technical analyses - only assertions - that UWB will interfere to unacceptable degrees with their current spectrum-using devices. It appears to us that they should be called upon, during the NPRM stage of Rules modification, to offer objective proof of the interference they fear. But simply objecting on the grounds their exclusive use of the bands assigned is the way its always been, not be allowed to stop this important and progressive step to much more beneficial use of the spectrum.

As pertains to the suggestion that UWB devices operate across spectrum licenced to Television broadcasters, the tests run by Interval, whose results are charted against background noise, that a Pentium computer produces no more than typical background noise, and both resemble the noise level of UWB, brilliantly makes the point that a wide variety of devices do not currently affect broadcast television reception in either homes or offices. And UWB devices will not either. The opposition by the Broadcasters Association has no merit based in the potential for interference by UWB devices certified to operate at background noise levels - or at levels currently approved for Personal Computers.

There is a lot of talk that there is no 'proof' that radios can be made to operate in large numbers without interference. That is simply not true. So attached to this reply is a shortened form of Tim Shepards Doctoral Thesis from MIT, 1995, which shows that millions of radios can co-exist, even in dense urban areas, without significant interference with each other or other devices.

IV

In summary, we believe that the time has arrived for the FCC to boldly consider changing the Part 15 Rules to accomodate Ultra Wide Bands of permitted use, but with requirements that devices do not exceed background noise levels of average radiation, and, in conformity with Part 706 of the Telecommunications Act of 1996 which calls for ALL Americans having access to 'advanced telecommunications capabilities' that the rules for power, and range be modified to insure that such UWB radios can reach from communications centers, every town, school, government office, or business, rural or urban. Which range we feel must be at least 50 miles, with no licence, non-commercial (services), radio devices.

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